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1 COLOR-CALIBRATION SENSOR WITH AUXILIARY CARRIAGE
2 FOR INCREMENTAL PRINTING
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4 ABSTRACT OF THE DISCLOSURE

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6 In one form of the invention, one sensor determines
7 mutual alignment of pens; a second sensor measures color
8 of dots formed on a print medium by the pens. Another
9 form has two carriages — one moving pens to mark on a me-
10 dium and the second used to refine quality of images pro-
11 duced. In a third form, a sensor measures color of test
12 patterns by one or more pens; a hood — generally around
13 the sensor laterally relative to a sensing direction —
14 excludes ambient light from the sensor during measuring; a
15 mechanism advances the hood along the sensing direction
16 toward the patterns. In a fourth form, a pen ejects mul-
17 tiple liquid-ink drops onto a medium, and a sensor infre-
18 quently measures color of resulting dots — only when the
19 pen is not forming images. In this form a door protects
20 sensor optics from coating by ink aerosol when the sensor
21 is not in use, including whenever the pen is writing; a
22 mechanism opens and closes the door before and after sen-
23 sor use. In a fifth form, a mechanism advances a color-
24 property-measuring sensor into contact with a medium bear-
25 ing test patterns. In a sixth form, a flashlamp in the
26 printer illuminates test patterns for measurement — at an
27 intensity high enough to make ambient light essentially
28 insignificant, and preferably for a time short enough to
29 make lamp energy usage and heating negligible. In a sev-
30 enth form, a moving carriage positions a sensor over test
31 patterns and at least one colorimetric reference target is
32 exposed to the sensor. The forms are best used together
33 and are subject to many important preferences.

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